



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

NEW HEPATICÆ, by C. F. AUSTIN.

1. *Sarcoscyphus Bolanderi*, Austin.—*S. pusillus*, dense intricate cæspitosus, nigricans, rufo-fuscus et lurido-viridis; caule repente vel apice adscendente 1-3 lineas longo valde radiculoso innovando-ramoso et ex apice prolifero-continuo clavato eflagellari; foliis inferioribus distantibus caule parum latioribus subverticalibus patulis, superioribus imbricatis valde majoribus subdistichis erecto-patentibus, omnibus ovato-rotundis (magis latis quam longis) obscure marginatis margine paullulum repandis apice $\frac{1}{4}$ - $\frac{1}{3}$ emarginato-bilobis, sinu acuto seu obtusiusculo, lobis plerumque valde obtusis, areolis distinctis pro genere maximis subconformibus subrotundis confertis subobscuris crassis, intercalaribus valde angustis obscuris; fructu——.

Hab. On exposed rocks, in the mountains of California, *Bolander* (1865).

S. Bolanderi in size about equals the European *S. adustum* (*Sarcoscyphus adustus*, Nees), and is remarkable chiefly for its leaf-cells being the largest of the genus, for the broad leaves being extremely variable in their position (either erectish or widely spreading or even somewhat recurved, and nearly plane or very concave or subcomplicate on the same stem), and for its very long numerous and delicate rootlets.

S. adustus has the lower leaves somewhat appressed, acutely lobed, and (except the very lowest ones) closely imbricated and the areolation (about as in *S. Funckii*) is much smaller.

2. *Sarcoscyphus Boeckii*, Austin.—*S. valde minutus* intricato-cæspitosus læte viridis; caule substricto fragili filiforme (fertili elongato-clavato, sterili ob folia perigonia interrupto) innovandi-ramoso proliferove eradiculoso? eflagellari? subsemiunciali; foliis caulinis valde distantibus distichis erecto-adpressis ovatis pellucidis bifidis, sinu lobisque acutissimis, margine sæpe scariosa, areolatione *S. Funckii*, involucralibus exterioribus sensim auctis ratione latioribus subimbricatis, interioribus duplo (quam exterioribus) majoribus in urceolam minutam oblongo-campanulatam fere ad apicem connatis, apice subrecurvo acute emarginato (lobis valde acutis); perianthio delicatissimo semiconnato involucro fere æquilongo; capsula globosa; foliis perigonalibus valde majoribus semigloboso-concavis imbricatis brevius emarginatis, lobis sæpe obtusis; perigoniis (2-3) magnis longiuscule stipitatis.

Hab. With *S. densifolius* and *Alicularia scalaris*, in the Norwegian Alps, Prof. *Bœck* (1869).

S. Boeckii is remarkable for its very minute size (about like *Jungermannia divaricata*), distant appressed and very acutely lobed leaves; the involucral ones connate nearly to the subrecurved apex, the perigonal abruptly much enlarged, etc.

The leaf is rather more deeply and acutely bifid, but its shape and texture, and the shape of the fertile stem are almost precisely as in *Gymnomitrium concinnatum*.

S. Funckii is a much larger species, with imbricated slightly se-

cund leaves, which are not appressed to the stem, and are somewhat obtusely lobed; the involucre is larger, and shorter in proportion to its size; its leaves are connate only at the base, and have their obtusely lobed apex subincurved or straight, the outer ones much larger and convolute; perianth much shorter than the involucre, and connate only at its base; capsule smaller in proportion, etc.

3. *Scapania Oakesi*, Austin.—*Sc.* foliis obovatis subpatentibus (sæpe deflexis) convexis arcte complicato-bilobis obtusis serrato-dentatis, lobo dorsali dimidio minore subrotundo minutius dentato, superioribus (præsertim involucralibus) duplo majoribus grossius dentatis margine versus basin carinaque saturate purpureis dentibus valde majoribus calcariformibus (curvatis) armatis; perianthio breviusculo oblongo fere a basi ad apicem leniter recurvo, ore truncato dentato; antheridiis cum paraphylliis (ut sæpe in *Sc. nemorosa* inventa sunt) immixtis.

Var. α . Caule erecto 2–3 unciali ex apice prolifero eradiculoso nonnunquam e ventre flagellari (flagellis brevissimis) toto longitudine æque folioso; foliis obovatis vel subtrapezoideo-rotundis basi saturate cæteroquin pallido-purpureis; inflorescentia dioica; foliis perigonalibus valde minoribus oblongis inflatis margine superiore ad basin calcaratis.

Var. β . Perianthio longiore fusco-purpureo; foliis longioribus oblongo-obovatis vel subcuneatis subdimidiatis haud vel minus patentibus basi margineque saturate purpureis cæteroquin viridibus, inferioribus magis minusve sphacelatis; inflorescentia monoica; foliis perigonalibus haud brevioribus latioribus magis imbricatis basi excavatis.

Var. γ . Caule brevi (circa $\frac{1}{2}$ – $\frac{3}{4}$ -unciali) basi decumbente valde radiculoso; foliis magis æqualiter bilobis fere toto læte viridibus, carinæ dentibus minus calcaratis; perianthio breviori apice latiore subplicato, ore inciso-ciliato; perigonalibus ut in Var. β .

Var. δ . Caule radiculoso; foliis minus dentatis, inferioribus sæpe carina calcaratis, superioribus minus auctis carinæ dentibus minoribus; perigonalibus haud visis.

Hab. Var. α and β , in the region of the White Mountains of New Hampshire, *Oakes*. Var. γ , in the Lake Superior region, Canada, *Macoun*. Var. δ , Observation Inlet, Columbia, Oregon, *Dr. Scouler* in Herb. Torrey.

8. *Oakesi* appears to be very closely allied to *S. undulata*, Var. *purpurea*; but is readily distinguished by the large spur-like teeth, on the carina of the uppermost leaves.

4. *Jungermannia crenuliformis*, Aust., *Hep. Bor. Amer. Exsic. ined.* No. 31.—*J.* examphigastriata, dense lateque cæspitosa, fusco vel miniato rufescenti-viridis; caule fertili repente substricto simplici sursum increcendo (radiculis plerumque purpureis) valde radiculoso, sterili subadscendente graciliore sursum decrecendo; foliis orbiculatis cellulis confertioribus crassioribus parum majoribus subquadratis marginatis valde concavis (siccatis ob marginem valde

constrictam fere cupulatis) leniter repando-undulatis integris vel submarginatis e basi radiculigera subventricosa et subappressa oblique patentibus (ad caulem valde oblique insertis) parumper decurrentibus, in caule sterili etiamnum magis concavis distinctius marginatis erecto-verticalibus; perianthio parvo subovato cum involucri foliis plus minusve connato haud vel parum exserto basi radiculoso primum apice subtriquetro acutiusculo et a lateribus subcompresso, uno latere plano vel 1-2- altero 3(-5)-plicato, demum teretiusculo atque apice subrostelliforme, plicis omnino bistriolatis; capsula ovali-globosa; calyptra saepe violacea.

Hab. On rocks along rivulets, near Closter, N. J.; associated with *Jung. pumila*, With., and *J. fossombronioides*, Aust.; also in Coschocton County, Ohio, *Sullivan*.

Allied to *Jungermannia crenulata*, Smith; but more robust and densely caespitose; leaves much more concave (when dry almost cup-shaped), composed of smaller cellules, less strongly margined, much more obliquely attached to the stem, and never appressed; color never red; perianth smaller, the angles not keeled, etc.; besides, the habitat is different.

Very distinct from *Alicularia scalaris* in the want of amphigastria, in the less crowded more spreading much less emarginate leaves, etc.

Cells of the leaves subrotund or suboval, obtusely angular, somewhat enlarged but scarcely elongated towards the base; those on the constricted margin (one or two somewhat interrupted rows) more or less quadrate and crowded, and often becoming whitish by age.

On account of the straightish simple stems, and strongly concave leaves (with a constricted margin), the sterile plant has a striking resemblance to some forms of *Sphagnæcetes communis*, Nees.

Mode of growth much as in *Jung. fossombronioides*; but smaller, and with a differently shaped perianth, etc.

5. *Jungermannia Wattiana*, Aust.—*J.* caule crassiusculo 2-4 lineas longo fragili subflexuoso arcuato subintricato valde radiculoso, gemmiparo spiciformi; foliis erecto-subverticalibus subpatulisve subovatis concavis emarginato-bilobis, inferioribus lobis plerumque acutis, superioribus acutis obtusisve saepe apiculatis incurvisque, sinu lunulato angulato, areolis subrotundis majusculis; amphigastrii subobsoletis valde difformibus plerumque ex ovato subpili-formi-acuminatis in subulatam transeuntibus margine hic illic ciliato-appendiculatis apice incurvis; perianthio terminali parvo inflato lageniformi-ovato, apice (contracto) albido, ore ciliato; involucri foliis parum majoribus subundulatis minus profunde bilobis; colore fusco-viridi vel brunneo.

Hab. On the ground; associated with *Sphagnæcetes Macounii*, *Scapania brevicaulis*, etc., in the Lake Superior region, Macoun, (1869). Communicated by D. A. P. Watt, Esq., of Montreal, Canada.

About the size of *J. excisa*, Dicks.—Remarkable for the small lageniform-ovate perianth, its contracted mouth shorter than in *J. Gillmani*. The gemmiparous stems are much as in *J. Helleriana*

and *J. porphyroleuca*, Nees. They are abruptly contracted near the middle into a dense obtuse spike, which is clothed with closely appressed leaves, of a loose oblong areolation. Gemmæ pale green.

6. *Jungermannia Sullivantiae*, Aust.—*J.* caule arcte repente flexuoso late cæspitose; foliis subovatis caule parum latioribus albidis dissitiusculis erecto-patulis vel subhorizontalibus subconcavis planisve basi valde angustata sessilibus ad $\frac{1}{2}$ – $\frac{2}{3}$ -bifidis, sinu obtuso, laciniis valde acutis subdivaricatis aut subconniventibus; perianthio in ramulo ventrali perbrevis terminali valde plicato obovato-oblongo subpressura obconico primum triquetro demum tereti, ore profunde circa 10-fido eodemque numero plicato, laciniis subconniventibus serratis subintegerrimisve; foliis involueralibus tribus majoribus erectis plerumque bi(-tri)-fidis margine externa plerumque unidentatis, uno ex tribus omnino integro angustiori valde obtuso heteromorphio amphigastriiforme.—*J. bicuspidata*, var. 2, Sulliv. Musc. Alleghan. n. 241.

Hab. On decayed wood, Ohio, *Sullivant*; Illinois, *E. Hall*.

Remarkable for the very narrow base of the leaf, and for the mostly bifid involueral leaves, with a large tooth on the outside near the middle or towards the base. One of the three involueral leaves (the ventral one) is usually narrower than the others, of an oblong shape, very obtuse and entire at the apex. Color of the whole plant whitish or very pale.—Resembles small forms of *J. bicuspidata*, Linn., in the leaves, but differs very widely in the shape of the perianth. *J. extensa*, Taylor, Syn. Hep., p. 685, differs in the linear-lanceolate perianth with the mouth denticulate. *J. supina*, l. c., p. 684, differs in the unequally bifid leaves, &c.

7. *Jungermannia Gillmani*, Aust.—*J.* caule abbreviato dense cæspitose prostrato subarcuato e ventre valde radiculoso ex apice valde incrassato et decedente prolifero-continuo; foliis orbiculato-ovatis verticalibus subconcavis laxè textis bifidis, inferioribus sinu dentibusque plerumque acutis, superioribus valde majoribus plus minusve undulatis emarginato-bilobis, lobis plerumque rotundatis nonnquam apiculatis, sinu plerumque obtuso; amphigastriis filiformibus vel filiformi-subulatis aut sæpe sublanceolatis nonnullo valde inæqualiter et profunde (raro subæqualiter et breviter) bifidis cauli adpressis, apice incurvo, basi in uno vel utroque lateribus unciutato-appendiculata; perianthio dorsali (adspectu terminali) sessili exinvolucrato (vel raro brevipedicellato atque subinvolucrato) verticali obovato-lageniforme antice subgibboso, apice albido valde angustato profunde laciniato (semper?), ore ciliato.

Hab. In a cave in a cliff of Potsdam sandstone, Traine Island, Lake Superior (Michigan), *Henry Gillman* (1867).

About the size and with much the general appearance of *J. intermedia*, Lindbg., or *Scapania brevicaulis*, Tayl. Color fuscous- or pale green. Stems cæspitose, 1–3 lines long, thick, upwardly much enlarged, densely radiculose underneath, terminating in a turion-like descending proliferous apex; innovations subventral. Rootlets long and intricate, fuscous, most numerous from underneath the turion-like apex of the stem. Leaves vertical, orbicular, ovate-orbicular,

or sometimes even broader than long, subconcave, emarginate or bifid, and often slightly narrowed at the apex, obscurely margined, at least the upper ones, which are much enlarged and more obtusely and less deeply lobed and undulate; lobes usually very obtuse or rounded, but often acute or acutish at the apex, frequently apiculate; sinus varying from very broad and obtuse in the upper leaves to narrow and acute in the lower ones; areolation large and rather lax. Amphigastria appressed to the stem and more or less hidden among the rootlets, setaceous or subulate, or the uppermost ones sometimes lanceolate, usually composed of 2-3 rows of cellules, often, however, of a single row, and not infrequently (the upper ones) of 4-6 or more rows, mostly entire but sometimes (the broader ones somewhat equally, the narrower ones very unequally) bifid, mostly with an erect cilia-like tooth on one or both sides at the base, the apex incurved. Perianth situated on the back of the turion-like apex of the stem (much as in *Fossombronia!*) vertical and at a right angle to the stem, mostly sessile and without involucreal leaves, rarely short-pedicled, and then with 1-2 leaves on the short stalk, obovate-lageniform (suddenly much contracted above the middle into a long narrow neck), somewhat gibbous on the front side, the mouth slightly funnel-shaped, ciliate, and at length incised. Pistillidia numerous. Antheridia in the axils of enlarged leaves near the apex of the stem and innovations. Although the base of the perianth is included between the upper pair of stem-leaves, these have no connection with and are arranged without reference to it. Their base is fully 2-3 times as broad as the base of the perianth and obliquely attached to the stem, and their apex points in a different direction from that of the perianth. Stems are found bearing perianths of both the present and the previous year's growth; these contain numerous pistillidia, which, notwithstanding the presence of antheridia, are all sterile.

8. *Sphagnocetis Macounii*, Aust.—Sph. caule intricato e ventre stolonifero vel innovante ramoso parce radiculoso nonnullo subjulaceo sursum decrescendo atque apice gemmifero; foliis arcte et laxè imbricatis ovali-rotundis maxime concavis appressis vel oblique subpatulis angustissime hyalino-marginatis integris et integerrimis aureo-viridibus nitidissimis elegantissime punctato et substriolato-areolatis, intercalariibus latis vitreo-pellucidis; amphigastriis subobsolētis ovato-lanceolatis; caule gemmifero proprio albescente stoloniforme succulento subclavato, foliis arcte appressis subeclorophyllous tenuibus laxissime suboblongo-et distinctius striolato-areolatis apice subemarginatis erosis; gemmis pallidis ovalibus; fructu ignoto.

Hab. On damp ground in the Lake Superior region, associated with other Hepaticæ; also with *Hypnum stellatum*, *H. revolvens*, *Myurella julacea*, *Blindia acuta*, etc.

An elegant species,—scarcely as large as *Gymnomitrium concinnatum*, Corda, and possibly belonging to the section *Scalariformia* of the same genus, but in most respects it resembles a *Sphagnocetis*.

Remarkable for the strongly concave leaves, with the margin much constricted in the dry state, as in *Jung. crenuliformis*, Aust., and *Sphagnæcetes communis*, Nees.

The leaves are of a beautiful golden green color, and shine as if polished or glazed. They are composed of largish punctiform cells, which have the contents collected into a somewhat stellate form, and are arranged in straightish rows, the marginal ones scarcely differ from the others, while those at the base in the centre are considerably enlarged; intercellular spaces rather broad and of a glassy transparency; dorsal margin subdecurrent, its cellules not elongated. Cells of the stem larger and oval-hexangular, otherwise much like those of the leaves.

The gemmiparous stems, on account of their whitish and closely appressed leaves, look very much like the ordinary stems of *Gymnomitrium concinnatum*; cellules of the leaves larger and much more distinctly arranged in rows than are those of the ordinary leaves.

9. *Madotheca Bolanderi*, Austin.—M. caule subsimplici flexuoso siccitate subtortuoso tumido 1–2 uncias longo (cum foliis) circa $2\frac{1}{2}$ lineas lato inferne defoliato; foliis dense imbricatis dimidiato-ovato-oblongis obtusis planiusculis patentissimis subsquarrosis in siccis magis minusve convoluto-decurvis cellulis parum crassioribus submarginatis, margine repanda vel hic illic caudato-dentata, ventrali haud inflexa rectiuscula haud expansa, dorsali ad basin longe protracta caulemque obtegente, cellulis rotundis subobscuris haud fulgentibus subuniformibus; lobo fere discreto parvo lanceolato-subulato, falcato contorto canaliculato obtuso vel acuto, margine repando-undulato, basi valde inæquali longe decurrente parce caudato-lacinulato; amphigastriis caule vix latioribus lingulato-ovatis oblongisve obtusis acutisve nonnunquam apiculatis sæpe apice fissis, marginibus longe decurrentibus repando-undulatis (præcipue versus basin) caudato-lacinulatis; perianthio magno e basi breviter obconica late ovato subcompresso superne leniter (circa 5-) undulato-plicato subtus versus basin bicarinato alato? versus apicem acute 1-nervo, ore angustato truncato minute ciliato; capsula ovali; elateribus uni(-bi)-spiris; foliorum involueralium lobis valde inæqualibus acutis subdenticulatis crenulatis? marginatis, amphigastriis acute bifidis.

Hab. California, *Bolander* (1865).

The chief characters of this species are the short, tumid, subflexuous and slightly twisted, nearly simple stems, naked below; the oblongish (when moist), nearly plane and widely spreading, rather distinctly margined upper leaf-lobe, its lower margin not in the least expanded nor inflexed, its dorsal margin expanded into a rounded auricle which stretches far over the stem; the long-decurrent, tortuous and crisped, and more or less caudate lower lobe and amphigastria; the large perianth, sharply 2-keeled or somewhat winged underneath, and indistinctly nerved above, the very acute and acuminate lower lobe of the involueral leaves, and the oval capsule. The upper lobe of the leaf is sometimes slightly undulate on

the lower margin ; when detached from the stem both its margins are frequently slightly ascending, giving it a subconcave appearance. There are frequently 1-2 or 3 caudæ-like teeth, chiefly towards the base, on the upper margin. There are usually 3 caudæ on each side of the amphigastria towards the base.

Probably closely related to *M. Niesiana*, Lindbg., Synop. Hepat., p. 271; but that does not appear to be sufficiently described, and it is said to have the lower lobe of the leaf oblong, and the amphigastria obtuse.

10. *Madotheca Sullivantii*, Aust.—Caule plerumque simpliciter pinato siccano apice valde decurvo, foliis madefactis erectioribus, margine ventrali stricta multumque involutori, cellulis majoribus punctato-stelliformibus, perianthio ventre late carinato, carina biangulata, etc., facile ab *M. involuta*, Hampe, distinguenda.—*Aust. Hep. Bor. Amer. Exsic. ined.*, No. 94.

Hab. In the Alleghany Mountains, *W. S. Sullivant* (1845).

About the size and with much the general appearance of large forms of *Radula pallens*.—Readily recognized by the very straight and strongly involute ventral margin of the leaf, etc.

11. *Lejeunia Sullivantia*, Aust.—L. caule stricto appresso parce diviso vel subsimplice ; foliis subimbricatis oblique obovato-rotundis erecto-patentibus margine subrepandis, areolis parvisculis subobscuris versus marginem sensim decrescentibus, lobulo subcucullato unidentato ; amphigastriis caule duplo vel triplo latioribus ovato-orbiculatis sinu angusto bifidis, laciniis semiovatis acutiusculis : sterilis.—*Hepat. Bor. Amer. Exsic. ined.* No. 96.—*L. serpyllifolia*, var., Sulliv. Musc. Alleghan. No. 273.

Hab. On the bark of trees and on the ground! in the Southern States, *Sullivant*, (1845); Louisiana, *Prof. A. Featherman* (1870).

About the size of *L. serpyllifolia*, or a little larger.—Readily distinguished by its straightish subsimple stems, and by the subopaque smallish cellules, which sensibly diminish towards the margin of the leaf.

12. *Frullania Wrightii*, Aust.—F. dioica, di(-tri)-gyna ; caule brevi prostrato subfasciculatim vel vage ramoso ; foliis imbricatis subrotundis obliquis valde convexis oblique decurvis siccatis subconvolutis apice et margine inferiore subinflexis basi inæqualiter cordatis margine integerrimis, areolis parvis haud convexis basilaribus parce majoribus marginalibus subquadratis ; auriculis medioeribus cucullato-galeatis rotundis subovatisve basilaribus et apicalibus explanatis cauli subcontiguus vel subdistantibus, lobulo dentiformi interjecto parvo plerumque lineari-lanceolato ; amphigastriis late obovatis ad $\frac{1}{4}$ emarginato-bidentatis margine repando-dentatis caule sesqui vel duplo latioribus ; ramulo fructifero perbrevis subclavato vel ad speciem fere capituliforme arcte foliato ; foliis involucralibus valde majoribus basi sensim angustata sessilibus uno alterove cum amphigastrio coalitis, lobulo dorsali oblongo integerrimo vel subrepando apice cucullato-inflexo, ventrali dimidio brevior ovato-lanceolato sæpe subfalcato acuto planiusculo vel subcanaliculato margine me-

dio hic illic dentato vel integerrimo basi uni-lacinulato : pl. masc. ignota.

Hab. New Mexico, *Chas. Wright* (1861), in Herb. Sullivant.

Has much the general appearance of some forms of *F. æolotis*, Nees; but that has the leaves scarcely imbricated, much less convex, less decurved, more ovate, repand and subcrenulate on the margin; auricle smaller, often sublunulate, or most frequently explanate; amphigastria rather wider and rounder; ordinary leaf-cells larger, the central ones much more inflated, the basal ones strikingly convex, etc.

Remarkable for the cucullate apex of the upper lobe of the involucreal leaf.—The perianth is very young, but appears to be somewhat winged on the keels, etc., as well as on the margin. The auricle is rather variable—often compressed, sometimes nearly touching the stem, at others about as distant as in *F. æolotis*; at the base and apex of the stem and branches it is always expanded into a suboval or oblong obtuse lamina, with a largish triangular-lanceolate tooth near its base.

13. *Frullania Sullivantiæ*, Aust.—*F. monoica*, minuta, pallida, vage ramosa; foliis oblique ovato-rotundis obtusissimis convexis apice decurvis cellulis crassioribus coloratis vel in medio dispersis vel in linea moniliforme brevi et e serie singula aut duplici et ultra exstructa collectis ornatis; auricula parviuscula obovata et obovato-rotunda cauli adproximata (vix stipitata) basi latiuscula folii marginem haud attingente; amphigastriis obovato-rotundis caule parum latioribus planis margine subrepanda utrinque subunidentatis; perianthio subimmerso obovato valde obtuso subtriquetro, dorso convexo, ventre breviter unicarinato utrinque leniter angulato.

Hab. On trees in a cedar swamp near Urbana, Ohio; detected by Mr. W. S. Sullivant. (Sparingly mixed with *Radula obconica* and *Phragmicoma clypeata* in Musc. Alleghan.)

Smaller than the smallest forms of *F. Grayana*, Mont.; from which it differs in its vague ramification, flatter and more closely creeping stems; always obtuse leaves, with the bead-like cellules in the centre most frequently collected into an irregular patch, or when forming a moniliform chain they do not run so obliquely through it, and consist of two or more rows (rarely of a single row); auricle shorter and placed close to the stem and parallel with it, its base not extending to the base of the leaf, its mouth less contracted; amphigastria smaller (about $1\frac{1}{2}$ times as wide as the stem), plane, angular or repand, and usually with a distinct obtuse tooth on each side above the middle; involucreal leaves and amphigastria shorter, their divisions less canaliculate; perianth more immersed, the apex retuse or obtuse and crowned with a shorter apiculus, whose mouth is slightly expanded and strongly papulose! inflorescence monœcious, etc.

14. *Frullania pendula*, Aust.—Caule prostrato alternatim bipinnato; ramulis strictiusculis divaricato-patentibus apice vix attenuatis; foliis imbricatis oblique lateque cordato-ovatis (magis latis quam longis) concavis integerrimis apice obtusissimis incurvis margine

ventrali abrupte subdecurentibus, auricula parva obovata vel subclavata pendulo-deflexa a caule distante tecta, lobulo dentiforme interjecto minutissimo e serie singula cellularum minutarum extructo, areolis parvis rotundis vel ovalibus maxime stelliformibus; amphigastriis maximis reniformi-ovatis (sesqui vel duplo latioribus quam longis) emarginato-bilobis, sinu acuto, lobis latissime ovatis subacuminato-apiculatis, margine plana integerrima, medio umbonato; spicula masculina rotundo-vel oblongo-ovata; fructu . . .

Hab. Viti or Fiji Islands, *Dr. B. Seemann*, No. 834, partly (1860) in *Herb. Sulliv.*

A rather large species, the stems 2–3 inches long by about 1 inch wide.—Remarkable chiefly for the auricle being suspended below the leaf and covered by the amphigastria, which are usually as large as the leaves and often twice as broad as long, with the lobes acuminate.

15. *Fimbriaria violacea*, Aust.—Differt a *F. Bolanderi*, Aust.: statura majore, fronde densissime areolata haud marginata subtus latius costata densius radiculosa, squamis brevioribus vix solutis, pedunculo crassiori breviori? basi submultum et toto longitudine parce piloso nigro-purpureo, receptaculo femineo majore subconoideo siccato haud umbonato plerumque tricarpo subtus longissime barbato et piloso, (pileis tubulosis intus [ut in radiculis] muriculatis), perianthiis subdependentibus subpyriformi-ovatis 12–16-fidis violaceis; a *F. echenella*, Gottsche, et *F. elegans*, Spreng.: fronde angustiore rigidiore concavo-canaliculata siccitate arcte involuta, receptaculo femineo haud tuberculoso, etc.

Hab. California, *Bolander* (1866).

About the size of *F. tenella*, Nees, and with much the same shaped fertile receptacle.—The specimens are immature and the peduncle (about 6 lines high) is probably not fully developed. The frond is 1–1½ lines wide by usually less than 1 inch in length, rigid, strongly concave-cannulate, when dry involute (as in *Grimaldia barbifrons*), densely areolated and pale green above, convex-thickened densely radiculose imperfectly squamulose distantly subpunctate and dark purple beneath. The floriferous innovations are very small, often scarcely exceeding a line in length, and much less squamulose than in *F. Bolanderi*; the antheriferous ones are usually smaller than the others. The fertile receptacle is areolated above like the frond, nearly smooth, and usually 3-fruited. The perianths are of a fine violetcolor, and not subhorizontally spreading as in *F. Bolanderi*.

In *F. elegans* there are no scales underneath the much less rigid broader and exareolated frond; the pale peduncle often arises from the apex of a continuation of the main frond; the lateral innovations are larger and more fully developed (1–2½ lines broad), etc. However the chief characteristic of both this species, and *F. echinella*, is the very prominently tuberculated upper surface of the fertile receptacle.

16. *Notothyas*, *Sulliv. Musc. Allegh.* (1845).—(*Carpolipum*, *Nees. Syn. Hep. p.* 591.—*Carpobolus*, *Schweinitz in Journ. Acad. Philadelph. II. p.* 367. f. 2.)—The elaters of this genus (*funiculi*, *Nees, l. c.*) are

essentially as in *Anthoceros*, but broader and shorter and still more heteromorphous. Like the spores, they are developed in a delicate globular utriculus, which contains from one to four of them, and which disappears upon their arriving at maturity. They usually separate at maturity, but may occasionally be seen adhering together, or even closely adhering to the spores. They appear to about equal the spores in number, and nearly in size, and are of a yellowish brown color, hyaline, much compressed and angular, and of a great variety of odd shapes,—usually oblongish but often (when borne singly) nearly or quite as broad as long. They are frequently variously marked (within) by faint lines or *fibres*, which are sometimes reticulated, sometimes spiral and sometimes annular, but often irregularly tortuous. The coloring matter is mostly collected into the fibres and angles, the latter of which are obtusish and obscurely thickened.

Spores at first in 4s (*utriculi matricales seminum quadrispermi!*), at length mostly separating, roundish, flattish, obscurely angled, and nearly smooth. Antheridia very large, composed of large inflated convex cellules, usually borne singly in deep pits in the upper surface of the frond, which are surrounded by a jagged margin.

Rootlets smooth or minutely granulose (within).

17. February Meeting.—At the meeting of the Torrey Botanical Club held February 27, 1872, Prof. John Torrey in the chair, Dr. Parry laid before the meeting two rare plants from Oregon, collected by E. Hall—*Coptis asplenifolia*, Salisb., figured in Hooker's *Flora Boreali-Americana*, and a new species of *Isopyrum*, named *Hallii* by Dr. Gray after the discoverer. This last would be a very desirable addition to the garden, being quite ornamental in foliage and flower, and an early bloomer.

Mr. Leggett presented to the College Herbarium a specimen with cone of a new species of pine—*Pinus Elliottii*, Engelm.—from South Carolina, sent by H. W. Ravenel, Esq.

Also were shown the following new books belonging to the Herbarium Library :

Flora of the Galapagos Archipelago. J. D. Hooker.

Internationales Wörterbuch der Pflanzennamen. W. Ulrich.

Geschichte und Litteratur der Lichenologie. A. von Kumpelhuber.

Die Vegetation der Erde. A. Grisebach.

Sertum Tianschanicum. Baron Fr. v. d. Osten-Sacken und F. J. Ruprecht.

Wonders of Vegetation. Translated by Prof. Schele de Vere.

Botanische Theil ; Fungi, Hepaticæ and Musci ; Voyage of the Frigate Novara around the World. H. W. Reichardt.

Sketches of the Botany of Pennsylvania. By Prof. Thos. C. Porter, Easton, Pa.

Members present, sixteen, viz. : Messrs. Torrey, Paine, Wilber, Hogg, Ruger, Leggett, Hall, Merriam, Wood, Parker, C. B. Gerard, McIntyre, Hyatt, Gross, Parry, Le Roy. P. V. LE ROY, *Sec.*

18. Wood's Plant Press.—The method of drying botanical specimens